

## REMARKS

This is intended as a full and complete response to the Office Action dated October 16, 2006, having a shortened statutory period for response set to expire on January 16, 2007. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-24 are pending in the application. Claims 1, 2, 4-12, 14-22, and 24-27 stand pending following entry of this response. Claims 1, 4, 6, 11, 14, and 21 have been amended to clarify the invention. Claim 20 has been amended to correct a minor typographical error. Claims 3, 13, 15, 23, and 24 have been canceled. New claims 25-27 have been added to recite aspects of the invention. Applicants submit that the amendments and new claims do not introduce new matter.

### Drawing Objections

The drawings are objected to as failing to comply with 37 CFR § 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 20 in Figure 1 (page 5, [0019]). In response, Applicants have amended the specification to remove reference numeral 20 from paragraphs [0016] and [0019], thereby obviating this rejection. Thus, Applicants respectfully request withdrawal of this objection.

### Claim Rejections - 35 U.S.C. § 102

Claims 1, 8-11 and 18-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Davis* (US 6,346,702). Applicants respectfully traverse this rejection.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

*Davis* does not teach, show, or suggest that "the noise reduction system performs a frequency analysis of the electrical signals to identify periodic noise" as recited in amended independent claim 1, nor does *Davis* teach, show, or suggest that the "signal processor performs a frequency analysis of the electrical signals to identify and remove periodic noise from the electrical signals" as recited in amended independent claim 1. Furthermore, *Davis* does not teach, show, or suggest that "removing noise includes performing a frequency analysis and then gating out periodic noise produced by the noise producing element from the electrical signals" as recited in amended independent claim 21. The Examiner concedes these points on page 6 of the Office Action dated October 16, 2006 by stating, "*Davis* does not explicitly disclose that (A) the noise reduction system performs a frequency analysis of the electrical signals to identify and further removes the periodic noise from the electrical signals."

Accordingly, Applicants submit that claims 1, 11, and 21, as well as those claims that depend therefrom, are allowable and respectfully requests withdrawal of this rejection.

#### Claim Rejections - 35 U.S.C. § 103

Claims 3-6, 13-14 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Cooper et al.* (US 2002/0025097 (hereinafter, "*Cooper*")) and *Chan* (*Chan et al.*: "Enhancement of Measurement Accuracy in Fiber Bragg Grating Sensors by Using Digital Signal Processing," CLEO 98, Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics, 1998, 3-8 May 1998 Page 311-312 (hereinafter, "*Chan*")). Applicants respectfully traverse these rejections.

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2142. To establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or

references when combined) must teach or suggest all the claim limitations. See MPEP § 2143.

The combination of *Davis* in view of *Cooper* and *Chan* fails to meet at least the third criterion for establishing a *prima facie* case of obviousness. For example, *Davis* in view of *Cooper* and *Chan* does not teach, show, or suggest an “optical system comprising...a receiver for converting applied optical signals into electrical signals...and a noise reduction system for removing noise produced by said noise producing element **from said electrical signals**, wherein the noise reduction system performs **a frequency analysis of the electrical signals to identify periodic noise**” as recited in amended independent claim 1. As described above and conceded by the Examiner, “*Davis* does not explicitly disclose that (A) the noise reduction system performs a frequency analysis of the electrical signals to identify...the periodic noise.” Applicants respectfully submit that *Cooper* and *Chan*, whether separate or combined, do not overcome the deficiencies of *Davis*.

*Cooper* teaches that the “pulse read-out unit 20 allows the optical signal to propagate to the wavelength detection unit 40 for a short period of time and acts as an optical gate on the returned optical signal” (paragraph [0062] lines 4-7). In other words, *Cooper* teaches that an *optical* signal—rather than an *electrical* signal—is gated to remove an undesired wavelength. The Examiner’s attention is also directed to Fig. 3 of *Cooper* where the output of the optical modulator 22 within the pulse read-out unit 20 shows a graph 54 of optical intensity versus time, indicating that an *optical* signal travels to the wavelength detection unit 40. Also in Fig. 3, the “gating of the *optical* pulses is demonstrated graphically by 23” (paragraph [0066] lines 11-12). Therefore, *Davis* in view of *Cooper* does not teach, show, or suggest “a noise reduction system for removing noise...from said **electrical signals**” nor that the “noise reduction system performs **a frequency analysis of the electrical signals to identify periodic noise**” as recited in claim 1. Similar arguments can be made for independent claims 11 and 21. *Chan* does not overcome the deficiencies of *Davis* in view of *Cooper*.

Accordingly, Applicants submit that claims 1, 11, and 21, as well as those claims that depend therefrom, are allowable and respectfully requests withdrawal of this rejection.

Claims 2, 12 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Keown* (US 4,143,350). Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Cooper* and *Chan* as applied to claims 1, 3-5, 11 and 13, and in further view of *Keown*. Claims 16 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Kringlebotn* (US 6,097,487). Applicants respectfully traverse these rejections. Applicants submit that claims 2, 7, 12, 16, 17, and 22, in view of the allowable independent claims 1, 11, and 21, are allowable and respectfully request withdrawal of these rejections.

Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Cooper* and *Chan* as applied to claims 1, 3-5, 11 and 13, and in further view of *Keown*. Claim 24 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Davis* in view of *Keown* as applied to claims 21 and 22 above, and in further view of *Cooper*. Applicants have canceled claims 15 and 24, thereby obviating this rejection. Thus, Applicants respectfully request withdrawal of these objections.

Conclusion

The references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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